

Barrel-shaped bearing**Claims**

1. A barrel-shaped bearing (1) having an external ring (2) and an internal ring (3), having at least one row of barrel-shaped rolling bodies (4; 22) arranged in between, and having at least one disk-shaped cage (5; 27) which revolves together with the rolling bodies (4; 22), engages in an encircling groove (7) of the rolling bodies (4; 22) of one row and, on its outer circumference (8), has a number of recesses (9) corresponding to the number of rolling bodies (4; 22) of a row, characterized in that

- a) the entire running surface (12) of the internal ring (3) has a concave cross section over the entire axial length of a rolling body (4; 22);
- b) the smallest distance between the two sides (26; 31) of a recess (9) of the disk-type cage (5; 27) is smaller in the region of the outer circumference (8) thereof than the diameter of a rolling body (4; 22) in the region of the groove (7) encircling the latter.

2. The barrel-shaped bearing as claimed in claim 1, characterized in that the maximum (radial) width b of the annular disk-type cage (5; 27) between the outer and inner circumferential surface (8, 10) thereof is greater than half of the diameter of a rolling body (4; 22) in the region of

the groove (7) encircling the latter.

3. The barrel-shaped bearing as claimed in claim 1 or 2, characterized in that the maximum (radial) width b of the annular disk-type cage (5; 27) between the outer and inner circumferential circle (8, 10) thereof is equal to the diameter of a rolling body (4; 22) in the region of the groove (7) encircling the latter, or is greater than said diameter.

4. The barrel-shaped bearing as claimed in one of claims 1 to 3, characterized in that the distance between two adjacent recesses (9) of the disk-type cage (4; 22) in the region of the outer circumference (8) thereof is greater than the difference of the maximum diameter of a rolling body (4; 22) minus the diameter thereof in the region of the groove base (13).

5. The barrel-shaped bearing as claimed in one of the preceding claims, characterized in that the sides (26; 31) of a recess (9) of the disk-type cage (5; 27) in the region of the outer circumference (8) thereof converge in its radial direction.

6. The barrel-shaped bearing as claimed in one of the preceding claims, characterized in that a recess (9) of the disk-type cage (5; 27) is edged by a curve (25; 28) of constant curvature r_s (in some regions).

7. The barrel-shaped bearing as claimed in one of the preceding claims, characterized in that the radius of

curvature r_s of the edging curve (25; 28) of a recess (9) of the disk-type cage (5; 27) is smaller than the radial width b of the disk-type cage: $r_s < b$.

8. The barrel-shaped bearing as claimed in one of the preceding claims, characterized in that the encircling groove (7) in the circumferential surface (16) of a barrel-shaped rolling body (4; 22) has mutually parallel side surfaces (21) or has side surfaces (23) diverging outward from each other.

9. The barrel-shaped bearing as claimed in claim 8, characterized in that the side surfaces (23) of the encircling groove (7) in the circumferential surface (16) of a barrel-shaped rolling body (22) run along conical circumferential surface areas.

10. The barrel-shaped bearing as claimed in claim 9, characterized in that the conical circumferential surface areas (23) in each case have opening angles α of more than 170° , preferably of more than 175° , in particular of more than 178° , so that the side surfaces (23) of a groove (7) enclose an intermediate angle β of less than 20° , preferably of less than 10° , in particular of less than 4° .

11. The barrel-shaped bearing as claimed in one of the preceding claims, characterized in that the conical circumferential surface areas (23) in each case have opening angles α of less than 179° , so that the side surfaces (23) of a groove (7) enclose an intermediate angle β of more than 2° .

12. The barrel-shaped bearing as claimed in one of the preceding claims, characterized in that the groove width b_N at the groove base (13) corresponds approximately to the thickness d of the disk-type cage (5; 27).

13. The barrel-shaped bearing as claimed in one of the preceding claims, characterized in that the cross-section of geometry of the external ring (2), of the internal ring (3) and of the rolling bodies (4; 22) is dimensioned in such a manner that a total of three or four contact points are produced per rolling body (4; 22).